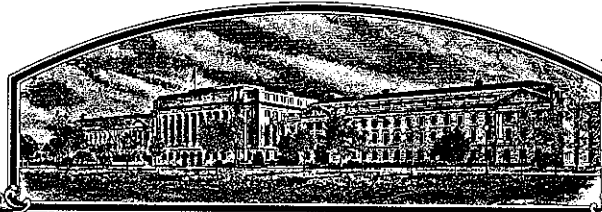


No.

8900271



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Virginia Polytechnic Institute and State University

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'Camp'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D. C. this 30th day of November in the year of our Lord one thousand nine hundred and eighty-nine.

Attest

Kenneth D. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Clayton Yentler
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

| | | | |
|--|--|--|---|
| 1. NAME OF APPLICANT(S) Va. Polytechnic Institute & State University | | 2. TEMPORARY DESIGNATION V81-1325-62 | 3. VARIETY NAME Camp |
| 4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) Blacksburg, Virginia 24061 | | 5. PHONE (Include area code) 703/231-6483 | FOR OFFICIAL USE ONLY PVPO NUMBER 8900271 |
| 6. GENUS AND SPECIES NAME Glycine max | 7. FAMILY NAME (Botanical) Leguminosae | | FILING DATE July 12, 1989 TIME 10:00 <input checked="" type="checkbox"/> A.M. <input type="checkbox"/> P.M. |
| 8. KIND NAME Soybeans | 9. DATE OF DETERMINATION November 1, 1988 | | AMOUNT FOR FILING \$2150.- DATE July 12, 1989 AMOUNT FOR CERTIFICATE \$250.- DATE Nov. 1, 1989 |
| 10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) University | | | FEE RECEIVED |
| 11. IF INCORPORATED, GIVE STATE OF INCORPORATION | | | 12. DATE OF INCORPORATION |
| 13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Glenn R. Buss Virginia Polytechnic Institute & State University Blacksburg, VA 24061 | | | |

PHONE (Include area code): 703/231-9788

| | | | |
|---|--|--|--|
| 14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED | | | |
| a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.) | | | |
| b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement. | | | |
| c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of Variety (Request form from Plant Variety Protection Office.) | | | |
| d. <input type="checkbox"/> Exhibit D, Additional Description of Variety. | | | |
| e. <input checked="" type="checkbox"/> Exhibit E, Statement of the Basis of Applicant's Ownership. | | | |
| 15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.) | | | |
| <input checked="" type="checkbox"/> Yes (If "Yes," answer items 16 and 17 below) <input type="checkbox"/> No | | | |
| 16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? | | 17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? | |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | <input checked="" type="checkbox"/> Foundation <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified | |
| 18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.? | | | |
| <input type="checkbox"/> Yes (If "Yes," give date) <input checked="" type="checkbox"/> No | | | |
| 19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES? | | | |
| Public release in the U.S. was February 1, 1989, no seed was marketed prior to that date. No foreign releases have been made. <input checked="" type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input type="checkbox"/> No | | | |
| 20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable. | | | |
| The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. | | | |
| Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties. | | | |

SIGNATURE OF APPLICANT

Glenn R. Buss

DATE

July 10, 1989

SIGNATURE OF APPLICANT

L. A. Swiger

L. A. Swiger, Assoc. Director,
Va. Agr. Experiment Station

DATE

June 30, 1989

Attachment 14a

Application for Plant Variety Protection
Certificate for Camp Soybeans

Exhibit A, Origin and Breeding History of Camp Soybeans

Camp is a selection made from the variety Vance which was also developed and released by the Virginia Agricultural Experiment Station. Vance was derived from an F₅ single plant selection from a cross of Essex x Glycine soja. The identity of the male parent was lost, but it was typical of the Glycine soja species, possessing a very viny growth habit, small leaves and very small, black seeds. Very intensive selection was conducted in the early generations for plant type similar to good, adapted varieties.

Vance was released as a variety in 1986. That year a non-replicated progeny-row planting was made from 78 individual plants that had been randomly chosen from Vance in 1985 to be used in purification of the variety and for Breeder Seed production. However, some variation among the rows was observed for plant height, leaflet shape, maturity, etc. Forty-nine of these rows were selected as being typical of Vance in general appearance and were harvested individually. Seed size and percent of seeds with green seedcoats were determined for each sub-line. Significant variation among the lines was observed for both traits. Green seedcoats are considered objectionable for natto production, so fourteen of the lines were selected for small seed size and low proportion of seeds with green seedcoats. These were put in a replicated field trial at one location in 1987 and small increase blocks of eight of them were planted. Based on data from this experiment, two sub-lines, V81-1325-10 and V81-1325-62 were very similar and had the least amount of green seedcoats. Since they had promise as improvements over Vance, about 30 lbs. of seed of each was sent to Belize for winter increase. In 1988, the seed returned from Belize was planted for further increase and the two lines, as well as three others, were planted in replicated tests at three locations for further evaluations.

A summary of all available data indicated that V81-1325-62 was most like Vance in yield, maturity, plant height, etc., but had significantly smaller and more uniform seed size as well as a much lower proportion of green seedcoats. The latter properties made it more desirable than Vance for natto production, so a decision was made to release it as a new variety, Camp.

A portion of the 1988 seed increase field of V81-1325-62 was carefully rogued at maturity and harvested to serve as Breeder Seed for future increases.

Attachment 14b

Application for Plant Variety Protection
Certificate for Camp Soybeans

Exhibit B, Novelty Statement

Camp is easily distinguished from most other varieties by its small seed size. Since it is a selection from Vance, it is very similar to Vance in general appearance, but has consistently smaller seeds than Vance. In four tests in different environments in 1987 and 1988. Camp seeds ranged from 1.2 gm/100 seeds to 0.7 gm/100 seeds smaller than those of Vance. The average difference was 1.0 gm/100 seeds with 0.3 gm/100 seeds required for statistical significance at the 0.05 probability level. Similarly, the proportion of seeds that passed through a 14/64" round-hole screen averaged 72% for Vance and 90% for Camp with 3% required for statistical significance.

We are aware of a few other small-seeded soybean varieties, but most of them are in earlier maturity groups. The only other variety of Group V maturity which we have been able to compare to Camp is one designated Rocky. It matures about 3 days earlier than Camp, is about 4 inches taller and is much more prone to lodging. The most obvious distinguishing features, however, are the round or ovate leaflets and white flowers of Rocky vs. the lanceolate leaflets and purple flowers of Camp. Hartz Seed Co. has some small-seeded varieties of Group V maturity or later, but these are not generally available for public use and have not been compared to Camp.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (*Glycine max* L.)

| | | |
|--|--------------------------------------|---|
| NAME OF APPLICANT(S) Va. Polytechnic Institute & State Univ. | TEMPORARY DESIGNATION V81-1325-62 | VARIETY NAME Camp |
| ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) Blacksburg, Virginia 24061 | | FOR OFFICIAL USE ONLY PVPO NUMBER 8900271 |

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,).

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)

3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)

4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

2. SEED COAT COLOR: (Mature Seed)

1 = Yellow

2 = Green

3 = Brown

4 = Black

5 = Other (Specify) _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')

2 = Shiny ('Nebsoy'; 'Gasoy 17')

4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

5. HILUM COLOR: (Mature Seed)

1 = Buff

2 = Yellow

3 = Brown

4 = Gray

5 = Imperfect Black

6 = Black

7 = Other (Specify) _____

6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow

2 = Green

7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low

2 = High

8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP1^a)2 = Type B (SP1^b)

9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')

2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')

3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')

4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

10. LEAFLET SHAPE:

1 = Lanceolate

2 = Oval

3 = Ovate

4 = Other (Specify) _____

4

11. LEAFLET SIZE:

☐

1 = Small ('Amsoy 71'; 'A5312')
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

12. LEAF COLOR:

☐

1 = Light Green ('Weber'; 'York')
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

13. FLOWER COLOR:

☐

1 = White

2 = Purple

3 = White with purple throat

14. POD COLOR:

☐

1 = Tan

2 = Brown

3 = Black

15. PLANT PUBESCENCE COLOR:

☐

1 = Gray

2 = Brown (Tawny)

16. PLANT TYPES:

☐

1 = Slender ('Essex'; 'Amsoy 71')
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

17. PLANT HABIT:

☐

1 = Determinate ('Gnome'; 'Braxton')

2 = Semi-Determinate ('Will')

3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

18. MATURITY GROUP:

☐

1 = 000

2 = 00

3 = 0

4 = I

5 = II

6 = III

7 = IV

8 = V

9 = VI

10 = VII

11 = VIII

12 = IX

13 = X

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

☐Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)☐Bacterial Blight (*Pseudomonas glycinea*)☐Wildfire (*Pseudomonas tabaci*)

FUNGAL DISEASES:

☐Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojina*)☐

Race 1

☐

Race 2

☐

Race 3

☐

Race 4

☐

Race 5

☐

Other (Specify)

☐Target Spot (*Corynespora cassiicola*)☐Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☐Powdery Mildew (*Microsphaera diffusa*)☐Brown Stem Rot (*Cephalosporium gregatum*)☐Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

5

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

☐ Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
☐ Purple Seed Stain (*Cercospora kikuchii*)
☐ Rhizoctonia Root Rot (*Rhizoctonia solani*)
 Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
☐ Race 1 ☐ Race 2 ☐ Race 3 ☐ Race 4 ☐ Race 5 ☐ Race 6 ☐ Race 7
☐ Race 8 ☐ Race 9 ☐ Other (Specify) _____

VIRAL DISEASES:

☐ Bud Blight (Tobacco Ringspot Virus)
☐ Yellow Mosaic (Bean Yellow Mosaic Virus)
☐ Cowpea Mosaic (Cowpea Chlorotic Virus)
☐ Pod Mottle (Bean Pod Mottle Virus)
☐ Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

Soybean Cyst Nematode (*Heterodera glycines*)
☐ Race 1 ☐ Race 2 ☐ Race 3 ☐ Race 4 ☐ Other (Specify) _____
☐ Lance Nematode (*Hoplolaimus Colonus*)
☐ Southern Root Knot Nematode (*Meloidogyne incognita*)
☐ Northern Root Knot Nematode (*Meloidogyne Hapla*)
☐ Peanut Root Knot Nematode (*Meloidogyne arenaria*)
☐ Reniform Nematode (*Rotylenchulus reniformis*)
☐ OTHER DISEASE NOT ON FORM (Specify): _____

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

☐ Iron Chlorosis on Calcareous Soil
☐ Other (Specify) _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

☐ Mexican Bean Beetle (*Epilachna varivestis*)
☐ Potato Leaf Hopper (*Empoasca fabae*)
☐ Other (Specify) _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

| CHARACTER | NAME OF VARIETY | CHARACTER | NAME OF VARIETY |
|-------------|-----------------|-----------------------|-----------------|
| Plant Shape | Vance | Seed Coat Luster | Vance |
| Leaf Shape | Vance | Seed Size | Vance |
| Leaf Color | Vance | Seed Shape | Vance |
| Leaf Size | Vance | Seedling Pigmentation | Vance |
| | | | |

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

| VARIETY | NO. OF DAYS MATURITY | PLANT LODGING SCORE | CM PLANT HEIGHT | LEAFLET SIZE | | SEED CONTENT | | SEED SIZE G/100 SEEDS | NO. SEEDS/POD |
|-------------------------------------|----------------------|---------------------|-----------------|--------------|-----------|--------------|-------|-----------------------|---------------|
| | | | | CM Width | CM Length | % Protein | % Oil | | |
| Submitted | 136 | 1.0 | 60 | | | 39.6 | 19.8 | 7.8 | |
| Vance Name of Similar Variety | 137 | 1.0 | 63 | | | 40.0 | 19.3 | 8.8 | |

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTi-A₂ in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

Attachments 14c, 14d and 14e

Application for Plant Variety Protection Certificate for Camp

- 14c. Exhibit C attached
- 14d. No additional information necessary.
- 14e. The breeder of this variety is Glenn R. Buss, who is an employee of the applicant, Virginia Polytechnic Institute and State University.